

IN THE CLAIMS

1. (previously presented) A circular pole piece included in a magnetic circuit for magnetic resonance imaging (MRI), said circular pole piece comprising:

a center portion including the center of said circular pole piece and a first set having a plurality of directional magnetic sheet tiles layered based on directions of axes of easy magnetization; and

a marginal portion surrounding the center portion, wherein a permeability of said center portion made of a first soft magnetic material exhibits with an external magnetic field applied thereto is higher than a permeability of said marginal portion made of a second soft magnetic material.

2. (previously presented) A circular pole piece according to Claim 1, wherein a composition of the first soft magnetic material is different than a composition of the second soft magnetic material.

3. (previously presented) A circular pole piece according to Claim 1, wherein a first of the directions of easy magnetization of a first of the directional magnetic sheet tiles is different than a second of the directions of a second of the directional magnetic sheet tiles, the directional magnetic sheet tiles of the first set collectively exhibit a non-directional property and are made from steel, and said marginal portion includes a second set of at least one non-directional magnetic steel sheet tile devoid of an axis of easy magnetization.

4. (previously presented) A circular pole piece according to Claim 1, wherein the first set includes at least one non-directional magnetic sheet tile devoid of an axis of easy magnetization and layered in combination with the directional magnetic sheet tiles of the first set, a first of the directions of easy magnetization of a first of the directional magnetic sheet tiles is different than a second of the directions of a second of the directional magnetic sheet

tiles, the directional magnetic sheet tiles of the first set collectively exhibit a non-directional property and are made from steel, and said marginal portion includes a second set of at least one non-directional magnetic steel sheet tile devoid of an axis of easy magnetization.

5. (previously presented) A circular pole piece according to Claim 1, wherein a first of the directions of easy magnetization of a first of the directional magnetic sheet tiles in the first set is different than a second of the directions of a second of the directional magnetic sheet tiles in the first set, the directional magnetic sheet tiles of the first set collectively exhibit a non-directional property and are made from steel, the marginal portion includes a second set having a plurality of directional magnetic sheet tiles layered based on directions of easy magnetization, a first of the directions of easy magnetization of a first of the directional magnetic sheet tiles in the second set is different than a second of the directions of a second of the directional magnetic sheet tiles in the second set, the directional magnetic sheet tiles in the second set collectively exhibit a non-directional property, are made from steel, and layered in combination with at least one non-directional magnetic sheet tile of the second set, and the at least one non-directional magnetic sheet tile of the second set devoid of an axis of easy magnetization.

6. (previously presented) A circular pole piece according to Claim 1, wherein the marginal portion includes a second set having a plurality of directional magnetic sheet tiles layered based on directions of easy magnetization, a first of the directions of easy magnetization of a first of the directional sheet tiles in the second set is different than a second of the directions of a second of the directional sheet tiles in the second set, the directional sheet tiles in the second set collectively exhibit a non-directional property and are made from steel.

7. (previously presented) A circular pole piece according to Claim 1, wherein a first of the directions of easy magnetization of a first of the directional magnetic sheet tiles in the first set is different than a second of the directions of a second of the directional magnetic sheet tiles in the first set, the directional magnetic sheet tiles of the first set collectively

exhibit a non-directional property and are made from steel, the first set including at least one non-directional magnetic steel sheet tile devoid of an axis of easy magnetization and layered in combination with said directional magnetic sheet tiles.

8. (previously presented) A circular pole piece according to Claim 1, wherein the first set includes at least one non-directional magnetic sheet tile devoid of an axis of easy magnetization and layered in combination with the directional magnetic sheet tiles of the first set, the marginal portion includes a second set having a plurality of directional magnetic sheet tiles layered based on directions of easy magnetization, a first of the directions of easy magnetization of a first of the directional magnetic sheet tiles in the second set is different than a second of the directions of a second of the directional magnetic sheet tiles in the second set, the directional magnetic sheet tiles in the second set collectively exhibit a non-directional property, are made from steel, and layered in combination with at least one non-directional magnetic sheet tile, the non-directional magnetic sheet tile of the second set devoid of an axis of easy magnetization, and a ratio of the at least one non-directional magnetic sheet tile in the second set to the directional magnetic sheet tiles in the second set is higher than a ratio of the at least one non-directional magnetic sheet tile in the first set to the directional magnetic sheet tiles in the first set.

9. (previously presented) A circular pole piece according to Claim 1, wherein a first of the directions of easy magnetization of a first of the directional magnetic sheet tiles is different than a second of the directions of a second of the directional magnetic sheet tiles, the directional magnetic sheet tiles of the first set collectively exhibit a non-directional property and are made from steel, and said marginal portion includes ferrite tiles.

10. (previously presented) A circular pole piece according to Claim 1, wherein the first set includes at least one non-directional magnetic steel sheet tile devoid of an axis of easy magnetization and layered in combination with said directional magnetic sheet tiles of the first set, a first of the directions of easy magnetization of a first of the directional magnetic sheet tiles is different than a second of the directions of a second of the directional

magnetic sheet tiles, the directional magnetic sheet tiles of the first set collectively exhibit a non-directional property and are made from steel and said marginal portion includes ferrite tiles.

11. (previously presented) A circular pole piece according to Claim 1, wherein said center portion includes amorphous soft magnetic material tiles, and said marginal portion includes non-directional magnetic steel sheet tiles devoid of an axis of easy magnetization.

12. (previously presented) A circular pole piece according to Claim 1, wherein said center portion includes Parmalloy tiles, and said marginal portion includes non-directional magnetic steel sheet tiles devoid of an axis of easy magnetization.

13. (previously presented) A circular pole piece according to Claim 1, wherein said center portion includes Parmalloy tiles, and said marginal portion includes ferrite tiles.

14. (currently amended) An MRI system comprising a circular pole piece comprising:

a center portion made of a first soft magnetic material; and

a marginal portion made of a second soft magnetic material and including a set of at least one non-directional magnetic sheet tile devoid of an axis of easy magnetization, said marginal portion circumscribing said center portion, wherein a permeability which said center portion exhibits when an external magnetic field is applied thereto is higher than a permeability of said marginal portion when the external magnetic field is applied.